National Institute of Environmental Health Sciences

Climatic components of seasonal variation in cholera incidence

Author(s): Hashizume M, Wagatsuma Y, Faruque ASG, Taiichi Hayashi H, Armstrong B
Conference: International Society of Environmental Epidemiologists (ISEE) 21st Annual Conference held 25-29 August 2009 (Dublin, Ireland)
Year: 2009
Publisher: Epidemiology
Volume: 20(6)
Page: S153

Abstract:

Background: The mechanisms underlying seasonality of cholera remain poorly understood, despite long-standing recognition of clear seasonality. We aimed to quantify the contribution of climatic factors to seasonal variation in cholera incidence. Methods: We investigated the association between weekly number of cholera patients in Bangladesh and seasonal and weather factors, using Poisson regression models. The contribution of each weather factor (temperature, high and low rainfall) to seasonal variation was estimated as the mean over seven years, for each week of the year of each weather term. Fractions of the number of cholera patients attributed to each weather factor, assuming all values were constant at their minimum risk levels throughout the year, were estimated for spring and monsoon seasons separately. Results: Temperature predicts lower incidence of cholera in the first 10 weeks of the year; low rainfall predicts a peak in spring; and high rainfall predicts a peak during the monsoon. The risk predicted from all the weather factors combined showed a broadly bi-modal pattern, as observed in the raw data. Conclusions: Seasonal variation in the number of cholera patients in Bangladesh could be partly explained by temperature and rainfall. The first and second peaks were substantially attributable to low and high rainfall, respectively, while low temperature explained the winter trough.

Source: http://dx.doi.org/10.1097/01.ede.0000362523.13023.65
http://journals.lww.com/epidem/Fulltext/2009/11001/Climatic_Components_of_Seasonal_Variation_in.446.asp

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Precipitation, Temperature

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Asia

Asian Region/Country: Other Asian Country

Other Asian Country: Bangladesh

Health Impact:

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Foodborne/Waterborne Disease

Foodborne/Waterborne Disease: Cholera

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content